INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior

National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
Exp. Date (11/30/2010)
Form No. (10-226)

Reporting Year: 2008	**Park:** Shenandoah NP	**Select the type of permit this report addresses:** Scientific Study

Name of principal investigator or responsible official: Diane McCarthy	**Office Phone:** 312-350-7719
Mailing address: 4117 N. Harding Ave. Chicago, IL 60618 USA	**Office FAX** **Office Email** diane@uic.edu

Additional investigators or key field assistants (first name, last name, office phone, office email)
No co-investigators

Project Title (maximum 300 characters):
Systematics and phylogeography of the genus Tilia in North America

Park-assigned Study or Activity #:	**Park-assigned Permit #:**	**Permit Start Date:**	**Permit Expiration Date:**
SHEN-00354	SHEN-2008-SCI-0015	Jul 15, 2008	Sep 30, 2008

Scientific Study Starting Date:	**Estimated Scientific Study Ending Date:**
Jun 01, 2008	Sep 01, 2011

For either a Scientific Study or a Science Education Activity, the status is:

Continuing

For a Scientific Study that is completed, please check each of the following that applies:

__ A final report has been provided to the park or will be provided to the park within the next two years

__ Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park

__ All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed

Activity Type:
Research

Subject/Discipline:
Plant Communities (Vegetation)

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

This study will investigate the evolutionary history of the genus Tilia (basswood) in North America. By conducting a sample of multiple populations and multiple individuals in each population, I will be able to determine the levels of genetic diversity within and among populations of this understudied genus. Further, I will use the genetic information to estimate an evolutionary history for the populations in North America and determine whether current species designations within Tilia are in fact valid.

This project is undertaken in fulfillment of the requirements of the PhD program at the University of Illinois at Chicago, Department of Biological Sciences.

Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

I collected 13 samples of Tilia from the Park in July 2008. Five of the 13 have been sequenced so far, using a non-coding chloroplast DNA marker. Four of those five are identical in DNA sequence; that sequence is the third most common sequence I have encountered in populations across North America. The fifth sample has a DNA sequence I have not yet encountered in any other population. The remainder of the samples will be sequenced in 2009 and further genetic markers will be added.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?
Yes
If "Yes", identify where the specimens currently are stored:
Pressed and dried herbarium specimens are stored temporarily at the Mason-Gamer laboratory at University of Illinois at Chicago.

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):	**Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):**
$0	$50

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year: